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EXAMINER

THIRUGNANAM, GANDHI

ART UNIT	PAPER NUMBER
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2624

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/506,311	Applicant(s) KONDO ET AL.	
	Examiner GANDHI THIRUGNANAM	Art Unit 2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 March 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 September 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Remarks

1. The response received on 17 March 2009 has been placed in the file and was considered by the examiner. An action on the merits follows.

Applicant has amended claims 1, 8, 11 and 15-17. No claims have been canceled. Claims 1-17 are pending.

The Examiner withdraws all 35 USC 112 first paragraph rejections.

The Examiner withdraws the 35 USC 112 second paragraph rejections of claims 1, 11 and 15-17.

The Examiner withdraws the 35 USC 112 second paragraph rejection of claim 8. It should be noted that Applicant is pointing to PGPub document to show support, not the specification.

Response to Arguments

2. Applicant's arguments with respect to claims 1-10, 15 have been considered but are moot in view of the new ground(s) of rejection.

3. Applicant's arguments filed 17 March 2009, with respect to claims 11-14 have been fully considered but they are not persuasive. Applicant (regarding claim 1) persuasively argued that Oda does not "storing multiple iris codes for a single registrant in a database" of a single eye. Claims 11-14 and 16-17 have not been amended to recite this limitation. These claims have not been modified enough to overcome the previous rejection.

In Applicant's amended claims, Applicant changed phrasing as (Claim 1 lines 13-15) "database" to "database device". There is no database "device" disclosed in the original disclosure. The only "database device" the examiner can think of is a CAM (Content Addressable Memory), which is also not disclosed. The term "database" does not require a change.

It appears Applicant is attempting to fix a tied-to (Bilski decision) issue. The Examiner suggests amending the claim to include:

at the last line of the method independent claims "wherein the above steps are computed by a digital computer" or in the first line of the body of the method independent claims "computing the steps below using a digital computer"

For the purpose of Clarification the Examiner has put in a small summary of relevant portions of Oda.

Oda (patent 6,542,624) paragraph 3 lines 8-12 states:

"The iris identifying system of the present invention has an iris code generating device and a database for storing iris codes of individuals and identifies individuals by matching an iris code generated by the iris code generating device and an iris code stored in the database."

There are a plurality of iris codes from a plurality of images of an eye (see Fig. 1); Col. 9 Lines 23-28. "The iris code generator 7 of the PC 5 generates iris codes from the iris images shown as images 15 to 17 of FIG. 1 sent from the image processor 29. In the iris image of this embodiment, portions that exhibit biogenic reactions are not on the iris pattern, so that an iris code can therefore be generated without hindrance." The different type of images include a minimum diameter pupil, intermediate pupil size and

max pupil size (Col. 5 Lines 20-49, the first paragraph corresponds to the min, the second with the intermediate and the third with the max pupil size)

This appears to show that Oda has a database of iris codes for each individual, which is used to identify a user, if they are proven to be living thing.

Even if Oda were not disclose multiple iris images, the limitation of “capturing, by a capture device, a plurality of iris images from a registrant” does not limit the iris image to be of a single eye. Tamai (PGPUB 2001/0026632) discloses a database system that photographs/registers a left eye and right eye of a registrant (a plurality of iris images from a registrant).

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claim rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1, 11 and 16-17 recites the term “database device”. It is not clear what a database “device” is. Is this merely a database?

Claim 1 lines 7-8 recites “associating that obtained pupil opening degree index with those obtained feature data”. It is not clear what “that” and “those” signify. Should this be similar to “associating the obtained pupil opening degree index with the corresponding obtained feature data”?

Line 26 similarly recites “associated with that pupil opening degree index.

Claims 11 and 15-17 are similarly rejected as claim 1.

Claim 11 Line 16 recites “at the third step”. There is no third step recited in claim

1. Note the “third step” has been cancelled with a strikethrough.

Claims 12-14 are similarly rejected as claim 11 for lack of antecedent basis.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 11-13 and 15-17 are rejected under 35 U.S.C. 102(e) as being anticipated by Oda (Patent #6,542,624), hereafter referred to as Oda.

Regarding **claim 11**, Oda discloses a personal authentication method using iris images, comprising:

a first step of capturing, by a capture device, an iris image from a person to be authenticated; (*Oda, Col. 4 Lines 9-11*)

a second step of obtaining feature data and a pupil opening degree index, of the person to be authenticated, from the iris image obtained at the first step; (*Oda, Col. 4 Lines 11-13, the system verifies whether or not the photographed image of the eye*

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exhibits biogenic responses, Where typical biogenic responses are defined in Col. 3 Lines 54-62. The "pupil opening index" references "the contraction of pupil diameter")

using the pupil opening degree index of the person to be authenticated to obtain the feature data, as feature data to be collated, that is associated with that pupil opening degree index of the person to be authenticated from feature data registered in an iris database device in which data registration has been done using pupil opening degree indices (*Oda, Col. 9, Lines 23-28, "The iris code generator 7 of the PC 5 generates iris codes from the iris images shown as images 15 to 17 of FIG. 1 sent from the image processor 29."*) (*Oda, Col. 3 Lines 8-12, "the present invention has an iris code generating device and a database for storing iris codes of individuals and identifies individuals by matching an iris code generated by the iris code generating device and an iris code stored in the database."*)

a fourth step of comparing the feature data to be collated which is obtained at the third step with the feature data obtained at the second step to determine whether or not the person to be authenticated is a claimed registrant. (*Oda, Col. 3 Lines 8-12, "identifies individuals by matching an iris code ..."*)

a fifth step of outputting the comparing result through an output device. (*Oda, Fig. 2)*

Regarding **claim 12**, Oda discloses the personal authentication method of claim 11, wherein:

the iris database stores at least one piece of feature data for each registrant together with a pupil opening degree index; (*Oda, Col. 3 Lines 8-12, the database for storing iris codes of individuals and identifies individuals*) and

at the third step, a pupil opening degree index registered together with the feature data, which is selected from the at least one piece of feature data registered in the iris database in conjunction with the registrant, is compared with the pupil opening degree index obtained at the second step to specify the feature data to be collated. (*Oda, Col. 3 Lines 8-12, "identifies individuals by matching an iris code ...", where the iris code can be one of four codes based on lighting conditions (Col. 12 Lines 9-20)*)

Regarding **claim 13**, Oda discloses the personal authentication method of claim 11, wherein:

the iris database stores parameters which express a relational expression between feature data and a pupil opening degree index for each registrant; (*Oda, Col. 12 Lines 9-20, the first to fourth codes generated based on lighting sources*) and

at the third step, a relational expression is obtained from the parameter registered in the iris database in conjunction with a registrant, and the pupil opening degree index obtained at the second step is assigned to the relational expression, whereby the feature data to be collated is obtained. (*Oda, Col. 3 Lines 8-12, "iris code stored in the database" and "identifies individuals by matching", where matching is done by comparing iris code. In order to retrieve information from a database a relational expression must be used.*)

Regarding **claim 15**, Oda discloses an iris registration device which performs data registration for iris authentication, comprising:

means for acquiring a plurality of iris images from a registrant; (*Oda, Fig. 2, #4 camera*)

means for obtaining feature data and a pupil opening degree index from each of the plurality of the iris images and associating the obtained pupil opening degree index with those obtained feature data; (*Oda, Fig. 2, #19 "Iris Image Processing Section"*) and

means for using the pupil opening degree indices to index the obtained feature data of the registrant; and (*Oda, Fig. 2, #19 "Iris Image Processing Section"*)

means for performing data registration for the registrant using storing the obtained feature data, the pupil opening degree indices and index relationship between the obtained feature data and the pupil opening degree indices, of the registrant, in an iris database. (*Oda, Fig. 2 #8, the "Host"*)

Regarding **claim 16**, Oda discloses an iris authentication device which performs personal authentication using iris images, comprising:

means for acquiring an iris image from a person to be authenticated; (*Oda, Fig. 2, #4 camera*)

means for obtaining feature data and a pupil opening degree index, of the person to be authenticated, from the acquired iris image; (*Oda, Fig. 2, #19 "Iris Image Processing Section"*)

means for using the pupil opening degree index of the person to be authenticated to obtain the feature data, as feature data to be collated, that is associated with that

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pupil opening degree index of the person to be authenticated from feature data registered in an iris database device in which data registration has been done using pupil opening degree indices; (*Oda, Fig. 2, #19 "Iris Image Processing Section"*) and means for comparing the feature data to be collated with the feature data obtained from the person to be authenticated to determine whether or not the person to be authenticated is a claimed registrant. (*Oda, Fig. 2, #10, "Authorized Person Matching Section"*)

Regarding **claim 17**, Oda discloses a memory encoded with a program for instructing a computer to execute personal authentication using iris images, comprising the steps of:

obtaining feature data and a pupil opening degree index, of the person to be authenticated, from an iris image acquired from a person to be authenticated; (*Oda, Col. 4 Lines 11-13, the system verifies whether or not the photographed image of the eye exhibits biogenic responses, Where typical biogenic responses are defined in Col. 3 Lines 54-62. The "pupil opening index" references "the contraction of pupil diameter"*)

using the pupil opening degree index of the person to be authenticated to obtain the feature data, as feature data to be collated, that is associated with that pupil opening degree index of the person to be authenticated from feature data registered in an iris database device in which data registration has been done using pupil opening degree indices; (*Oda, Col. 3 Lines 8-12, "identifies individuals by matching an iris code ...", where the iris code can be one of four codes based on lighting conditions (Col. 12 Lines 9-20)) (Oda, Col. 3 Lines 8-12, "the present invention has an iris code generating device*

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and a database for storing iris codes of individuals and identifies individuals by matching an iris code generated by the iris code generating device and an iris code stored in the database.")and

comparing the feature data to be collated with the feature data obtained from the person to be authenticated to determine whether or not the person to be authenticated is a claimed registrant. (*Oda, Col. 3 Lines 8-12, "identifies individuals by matching an iris code ..."*)

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 1-5,7 and 15-16 rejected under 35 U.S.C. 103(a) as being unpatentable over Oda, in view of Tamai (PGPUB 2001/0026632), hereafter referred to as Tamai in view of Well Known Art.

Regarding **claim 1**, Oda discloses a personal authentication method using iris images, comprising a registration process and an authentication process, the **registration process** including the steps of:

capturing, by a capture device, a plurality of iris images from a registrant; (*Oda, Col. 4 Lines 9-11, 'the subjects eye is photographed at this time by the camera'; (Tamai, Fig. 3 (left eye and right eye))*)

obtaining feature data and a pupil opening degree index from each of the plurality of iris images and associating that obtained pupil opening degree index with those obtained feature data; (*Oda, Col. 4 Lines 11-13, the system verifies whether or not the photographed image of the eye exhibits biogenic response, where typical biogenic responses are defined in Col. 3 Lines 54-62, The "pupil opening index" references the "contraction of pupil diameter". Oda also show other feature data such as Refection of light by the pupil, movement of the pupil..., as well as an image of the eye) Oda discloses capturing a single image but not a plurality of iris images. (Tamai, Fig. 3 (left eye and right eye)) and*

using the pupil opening degree indices to index the obtained feature data of the registrant; and (*Oda, Col. 9, Lines 23-28, "The iris code generator 7 of the PC 5 generates iris codes from the iris images shown as images 15 to 17 of FIG. 1 sent from the image processor 29."*)

performing data registration for the registrant including storing the obtained feature data, the pupil opening degree index and index relationship between the obtained feature data and the pupil opening degree indices, of the registrant, in an iris

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database device, and *(Oda, Col 4, Lines 14-24, where the image of an eye exhibiting biogenic characteristics is inputted based on the life check code.)*

the **authentication process** including steps of:

capturing, by a capture device, an iris image from a person to be authenticated;
(Oda, Col. 4 Lines 9-11)

obtaining feature data and a pupil opening degree index, of the person to be authenticated, from the acquired iris image; *(Oda, Col. 4 Lines 11-13, the system verifies whether or not the photographed image of the eye exhibits biogenic responses, Where typical biogenic responses are defined in Col. 3 Lines 54-62. The "pupil opening index" references "the contraction of pupil diameter")*

using the pupil opening degree index of the person to be authenticated to obtain the feature data, as feature data to be collated, that is associated with that pupil opening degree index of the person to be authenticated from feature data registered in the iris database device; *(Oda, Col. 3 Lines 8-12, "the present invention has an iris code generating device and a database for storing iris codes of individuals and identifies individuals by matching an iris code generated by the iris code generating device and an iris code stored in the database.")*

comparing the feature data to be collated with the feature data obtained from the person to be authenticated in the authentication process to determine whether or not the person to be authenticated is the registrant. *(Oda, Col. 3 Lines 8-12, "identifies individuals by matching an iris code ...")*

outputting the comparing result through an output device. (*Oda, Col. 3 Lines 8-12, "identifies individuals by matching an iris code ..."*)

It would have been obvious to one of ordinary skill in the art at the time of invention to modify Oda with Tamai for the purpose of having a more accurate detector by using two eyes instead of just one.

Regarding **claim 2**, Oda discloses the personal authentication method of claim 1, wherein:

the registration process includes the step of registering the feature data together with the pupil opening degree index in the iris database in conjunction with the registrant; and (*Oda, Col. 3 Lines 8-12, the database for storing iris codes of individuals and identifies individuals*)

the authentication process includes the step of specifying the feature data to be collated from feature data registered in the iris database in conjunction with a registrant by comparing the pupil opening degree index obtained in the authentication process with the pupil opening degree index registered together with the feature data. (*Oda, Col. 3 Lines 8-12, "identifies individuals by matching an iris code ...", where the iris code can be one of four codes based on lighting conditions (Col. 12 Lines 9-20)*)

Regarding **claim 3**, Oda discloses the personal authentication method of claim 2, wherein the registration process includes the step of at least registering three pieces of feature data of the registrant obtained from iris images in a pupil-contracted state, in a normal state, and in a pupil-dilated state, respectively. (*Oda, Col. 3 Lines 54-62, "Contraction of pupil diameter"*)

Regarding **claim 4**, Oda discloses the personal authentication method of claim 2, wherein the registration process includes the steps of:

acquiring a plurality of iris images having different pupil opening degrees from the registrant; (*Oda, Col. 5 Lines 17- Col. 6 Line 43 discloses photographing multiple images based on various light sources. The light sources intensity controls the pupil diameter*)

obtaining feature data from each of the plurality of acquired iris images; (*Oda, Col. 5 Lines 17- Col. 6 Line 43, the pupil diameter*) and

collating the plurality of pieces of feature data with each other to select feature data to be registered in the iris database from the plurality of pieces of feature data. (*Oda, Col. 12 Lines 9-20, the first to fourth codes generated*)

Regarding **claim 5**, Oda discloses the personal authentication method of claim 2, wherein the authentication process is aborted when feature data having a pupil opening degree index which is close to the pupil opening degree index obtained in the authentication process by a predetermined difference is not registered for the registrant. (*Oda, Col. 8 Lines 64-67, if there is no matching the processing is halted*)

Regarding **claim 7**, Oda discloses the personal authentication method of claim 1, wherein the registration process includes the steps of:

acquiring a plurality of iris images having different pupil opening, degrees from the registrant; (*Oda, Col. 5 Lines 17- Col. 6 Line 43 discloses photographing multiple images based on various light sources. The light sources intensity controls the pupil diameter*)

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obtaining a relational expression between feature data and a pupil opening degree index based on a plurality of pieces of feature data and pupil opening degree indices obtained from the plurality of acquired iris images; (*Oda, Col. 12 Lines 9-20, the first to fourth codes generated based on lighting sources*) and

registering parameters for expressing the relational expression in the iris database in conjunction with the registrant, (*Col 4, Lines 14-24, where the image of an eye exhibiting biogenic characteristics is inputted based on the life check code.*) and

the authentication process includes the step of obtaining a relational expression from parameters registered in the iris database in conjunction with a registrant and assigning the pupil opening degree index obtained in the authentication process to the relational expression to obtain the feature data to be collated. (*Oda, Col. 3 Lines 8-12, "iris code stored in the database" and "identifies individuals by matching", where matching is done by comparing iris code. In order to retrieve information from a database a relational expression must be used.*)

by interpolation. (*Oda, Col. 1 Lines 43-58, the iris code stored on the database*)

Claim 15 is rejected under the same reasoning as claim 1's "Registration Process"

Claim 16 is rejected under the same reasoning as claim 1's "Authentication Process"

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11. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Oda in view of Smith (PGPub 2002/0016839), hereafter referred to as Smith in further view of Bowers (Patent 5,546,529), hereafter referred to as Bowers

Regarding **claim 8**, Oda discloses the personal authentication method of claim 7, wherein:

the registration process includes the step of reducing the number of the parameters before registration; (*Smith*, ¶0037) and

the authentication process includes the step of restoring the reduced number of parameters by interpolation. (*Bowers*, Col. 6 Lines 20-54)

It would have been obvious to one of ordinary skill in the art at the time of invention to modify Oda with Smith to reduce the size of a database.

It would have been obvious to one of ordinary skill in the art at the time of invention to modify Oda and Smith with Bowers to be able to receive any sample point between values in a look-up table.

12. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Flom et al. (Patent #4,641,349), hereafter referred to as Flom.

Regarding **claim 6**, Oda discloses the personal authentication method of claim 5, But Oda does not specifically teach

“wherein when the authentication process is aborted, a preferable condition for capturing an iris image is estimated based on the pupil opening degree index obtained

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in the authentication process and a pupil opening degree index associated with registered feature data, (*Flom, Col. 11 Line 65- Col. 12 Line 10*) and

the person to be authenticated is advised to re-acquire an iris image under the estimated capturing condition. (*Flom, Col. 12 Lines 11-17*)”

It would have been obvious to one of ordinary skill in the art at the time of invention to modify Oda with Flom for the purpose of getting the best possible image of the eye.

13. Claims 9 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishida (Patent #6,424,746), hereafter referred to as Nishida.

Regarding **claim 9**, Oda discloses the personal authentication method of claim 1, wherein the registration process includes the steps of:

acquiring a plurality of iris images having different pupil opening degrees from the registrant; (*Oda, Col. 5 Lines 17- Col. 6 Line 43 discloses photographing multiple images based on various light sources. The light sources intensity controls the pupil diameter*)

But Oda does not specifically teach the concept of a transformation rule (*Nishida, Col 4, Line 53 to Col. 5 Line 16 does not disclose the use of iris images, but does discloses use of transformation rule applied to structural features which reads on the feature data.*) in

“specifying registration feature data from a plurality of pieces of feature data obtained from the plurality of acquired iris images and obtaining a transformation rule for

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transforming the registration feature data to another feature data having a different pupil opening degree index; (*See Nishida Lines above*) and

registering the registration feature data and the transformation rule in the iris database in conjunction with the registrant, (*See Nishida lines above*)

the authentication process includes the step of generating the feature data to be collated using the pupil opening degree index obtained in the authentication process based on feature data and a transformation rule registered in the iris database in conjunction with a registrant. (*See Nishida lines above*)

It would have been obvious to one of ordinary skill in the art at the time of invention to modify Oda with Nishida for the purpose of fixing images deformed by noise.

Examiner notes that the creation of iris code in Oda is a transformation rule. But the transformation rule is not saved in the iris database in conjunction to the registrant.

A simple encryption key can also read on the transformation rule.

Regarding **claim 14**, Oda discloses the personal authentication method of claim 11, wherein:

But Oda does not specifically teach the concept of a transformation rule

“the iris database stores feature data and a transformation rule for transforming the feature data to another feature data having a different pupil opening degree index for each registrant; (*Nishida, Col. 4 Line 53 to Col. 5 Line 16*) and

at the third step, the feature data to be collated is generated using the pupil opening degree index obtained at the second step based on the feature data and the

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transformation rule registered in the iris database in conjunction with a registrant.

(Nishida, Col. 4 Line 53 to Col. 5 Line 16)"

It would have been obvious to one of ordinary skill in the art at the time of invention to modify Oda with Nishida for the purpose of fixing images deformed by noise.

14. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki (Patent #6,614,919), hereafter referred to as Suzuki.

Regarding **claim 10**, Oda discloses the personal authentication method of claim 1,

But Oda does not specifically teach

"wherein the pupil opening degree index is the ratio of a pupil diameter to an iris diameter in an iris image." *(Suzuki, Col. 8 Lines 15-25, "ratio of the radius r_p of the pupil circle and the radius r_i of the iris circle to the central angle A_p of the pupil is determined (ratio $IP=r_i/r_p$)")*

It would have been obvious to one of ordinary skill in the art at the time of invention to modify Oda with Suzuki for the purpose of defining a pupil opening degree index.

Conclusion

15. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

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§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to GANDHI THIRUGNANAM whose telephone number is (571)270-3261. The examiner can normally be reached on M-Th, 7:30am to 6pm, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh M. Mehta can be reached on 571-272-7453. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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